

Analysis on Insurance Policy and Related Customer Behavior using Data Mining Technique

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ABSTRACT

Insurance policy information is not only significant for that particular policy but those features alias contextual information can be utilized for extracting information about those features which are the cause for the cancellation of the policy adoption by the customer. By identifying these features it not only caters to the better understanding of customer behavior but also to create such nonexistent policies based on those features which are not agreed upon for adoption of other former insurance policies. This results in both increased sale of policies and more security for the people by adoption of insurance policies besides the early cancellation of adoption of policies based on certain grounds. In order to reduce dimensionality few salient features which are significant for adoption of policies have been used for the study.

General Terms

Insurance policy, data mining, clustering, customer behavior, cancellation of insurance policy.

Keywords

Sum Assured, premium amount, optional rider, risk benefit

1. INTRODUCTION

When customers wish to adopt insurance policies they would not want to undergo a tedious process. Besides it is not a pleasant experience when the insurance company is not satisfied with the produced proof documents and subsequently cancels the signing of policy by the customer concerned. This is inefficient in terms of resources for both the company and the intending customer. In order to bring equilibrium between what the customers are of and what the company expects from the customer we need to primarily extract the features on the basis of which the policies are being cancelled. Sum assured is the amount of sum the insurance company has promised to pay at the time of maturity of the policy. Risk factor is when an insurance holder suffers demise which causes in breach of paying the premium amount for the adopted insurance policy. This poses a threat to the insurance holders' family who shall want to recover the sum assured by the company besides the demise of the policy holder in prior to the successful maturation of the policy. Optional rider is an additional

benefit provided to the policyholder in case of demise by accident which incurs double the sum assured to the policyholder. But in few policies accident benefit cannot be adopted at the initialization of signing of policy itself, some policies provide a choice to change from ordinary insurance policy to accident benefit policy only after a specified term which will require additional charges to the premium amount. This study includes few salient features that demarcate one policy from the other in order to extract information on why a policy is being cancelled and the company can subsequently create new nonexistent policies having these features as their base.

2. LITERATURE REVIEW

Being an underdeveloped area of study insurance policy and the underlying features of the same have not been much studied or researched upon so far. Previous study on insurance schemes had focused on finance industry and the customers' focus on dividends rather than the life cover of the policy [1]. 36% of the first generation children of families in the United States were uninsured in the year 2007 [2]. The focus of many other potential customers is on the insurance company's brand rather than the benefits of the policy [3]. Previous study has also thrown light upon customer satisfaction, though the factors corresponding to it were not clearly studied [4]. Through the study of concepts, procedures, objectives and scope of the policy this paper analyses the potential customer behavior. It emphasizes the policy holders' protection in insurance sector and financial society. The overall analysis is the whole protection of every policyholder which is invested with the insurance company. Likewise various studies were concluded on insurance programs but focusing on credit risk, financial security analysis, unlike our current study on customer expectations and a way for the insurance company to increase their sale of policies.

3. SYSTEM MODEL

3.1 Algorithm Calculate

Input C

(Customer_Age, Customer_Educational_Qualification,
Customer_Proof)

Input P

(Policy_Name, Policy_Type,
Policy_Minimum_Requirements)

0. Initialize scan (C, P)
1. Display C which does not match P requirements
2. Output C
3. Display C which matches P requirements
4. Output C
5. End calculate

From the above algorithm we can extract the customer features that do not suffice the mandatory policy requirements. Consequently those features can be used for further analysis and study.

4. PERFORMANCE AND ANALYSIS

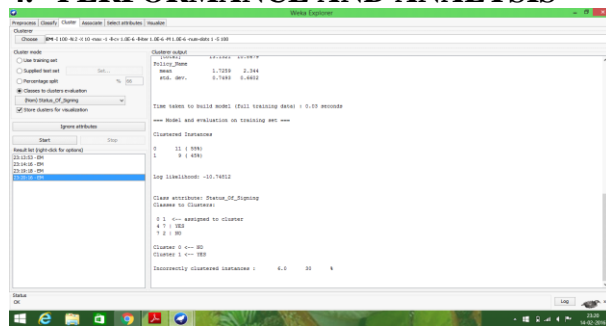


Figure (1) showing input of customer data using WEKA tool

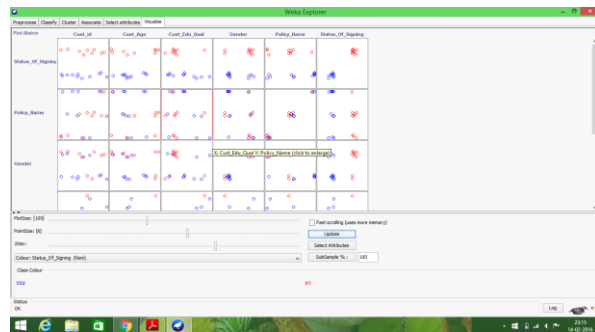


Figure (2) showing the results of Cluster Analysis using WEKA tool

From the above data we can infer that those customers who have been rejected on the basis of minimum education qualification and age that is the primary requirement for the specific policy is extracted and the insurance company can decide upon this issue. In order to bring more people under insurance coverage and also considering the security issues or the credit security of the insurance company the company can decide to reduce the insurance coverage amount considering the possible issues. Annually the company can mine such data and study the customer behavior and suit their needs keeping in mind the company's risks as well.

5. CONCLUSION AND FUTURE ENHANCEMENT

Through this study we can infer the amount of policies being cancelled on several grounds and consequently the insurance companies can bring in new nonexistent policies to match the same in order to bring increase in sale of policies as well as attract divergent customers. This also brings more credit security for the intending customers. The potential future work can be done to eliminate the difference of benefits between male and female policyholders or intending customers. This study has proved that male policyholders or intending customers have a trivial advantage over the female policyholders or intending customers in case of security and proof documents that is required prior to the adoption of policy.

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